Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE CONCEPT OF AN ECONOMIC QUANTITY.

I.

STUDENTS of economics will remember the late Francis A. Walker's contention that money is not a measure, but only a denominator of value. After stating that value is a "relation," he argues as follows: "But a measure, a relation, a ratio, cannot be measured! You do not measure the relation of a mile to a furlong: you express it as 8:1. You use a common language for the two quantities. You take a common term or denominator for the two distances, and thus set them in immediate comparison with each other." [1] In the subsequent argument, Walker contended that money served merely to name the relation between the values of things rather than to measure their values. This piece of reasoning is introduced here not so much because it is fallacious as because it is typical of a great deal that has been written in apparent ignorance of the real nature of an economic quantity, and because this apparent ignorance accounts for a good deal of confusion in the discussion of a number of important questions in economics. An examination of Walker's argument will serve as a good introduction to the general question of the meaning and significance of an economic quantity.

Without stopping to comment upon the inconsistency between this conception of value as a mere relation and Walker's own definition of value as "*power* in exchange," it is pertinent to ask how one could even name the ratio between two concrete, material things without first measuring them. To name the ratio between them is to compare them quantitatively,—to say how the amount of one compares with the amount of the other. Obviously, one must first ascertain their respective quantities before he can state the relation between those quantities. What Walker seems to have overlooked is the fact that a mile and a furlong are not concrete material things, but mere expressions of quantity. There is a wide difference, for example, between a mile and a fence a mile long, and also between a furlong and a fence of that length. If one were asked to *name* the ratio between two fences, he would first have to measure them. And, if he were ever so good in applied mathematics, but unacquainted with the customary use of language, he would not know how to measure a fence; that is, he would not know whether to find out its length, its height, its thickness, its superficial area, its cubic contents, or its weight. But he would probably find by a very little inquiry into customary usage, that measuring a fence means finding its length. And, in order to do this, he would have to take some other concrete, material thing *possessing length*,—say a chain, a pole, or a piece of string,—and find, by actual tests, the ratio between the fence and the unit of measurement in the matter of length. Only after he had ascertained, by measurement, that one fence was a mile and the other a furlong in length, could he even express their ratio as 8:1. Even then he might reverse the ratio if he found that the shorter fence was eight times as high as the longer. In that case it would be correct to express the ratio between the two fences either as 8:1 or as 1:8, according as length or height were taken as the basis of quantitative expression. Which basis should be taken would depend upon whether length or height were considered the more important dimension for the purpose in hand.

---

[1] *Money in its Relation to Trade and Industry*, p 30

This illustration will serve as a reminder, without the need of elaborate analysis, that measuring a thing means selecting one of its properties and comparing it on the basis of that property with some other thing. In measuring a fence, for example, the property called length is selected, and the fence is compared on that basis with something else, a chain, possessing length. Obviously no such comparison can be made unless the thing used as a unit of measurement also possesses that property of the thing to be measured which is selected as the basis of comparison. Inasmuch as every physical object possesses a great number of properties, any one of them may be chosen as the basis of measurement,—its length, breadth, or thickness; or the product of all three, its bulk; or its potential energy; or, in economic discussions, its value.

That value is a quantitative concept is demonstrated by the fact that it takes such modifiers as "more" or "less," and that the question, how much? when asked with respect to the value of a thing, is intelligible,—quite as intelligible as when asked with respect to its length or its weight. Moreover, the question, how much? when asked with respect to any property of anything, can only be answered by means of a comparison. To say, for example, that a certain reservoir contains a million gallons of water means simply that it contains as much water as would fill a certain receptacle with certain dimensions—a gallon measure—one million times. And there is absolutely no way of expressing a quantity of water except by some such comparison. Of course, it is not necessary actually to dip the water out with a gallon measure, but some actual comparison must be made. It would probably be done by measuring the three dimensions of the reservoir, and comparing their product with that of the three dimensions of a gallon measure. Similarly, there is absolutely no way of expressing the quantity of value, or power in exchange, in a thing except by means of a comparison, tho it is not necessary actually to go thru the form of an exchange, any more than it is necessary actually to dip the water out of the reservoir with a gallon measure.

All this seems simple enough, and the reader may well be impatient. But students of economics have so often failed, as did Walker in the above quotation, to apply these principles to economic discussions, where questions of quantity and quantitative measurement are involved, that it seems necessary to elaborate the argument. The essential points to be remembered are these: 1. Value is a quantitative concept. 2. The value of one thing can be compared with that of another. 3. When the value of one thing is compared with that of another, and the value of the one stated in terms of the other, this constitutes a measurement of the one, the other being the unit of measurement. This is exactly what is done when the value of a thing is stated in terms of money, and money becomes the unit of measurement as truly as a pound weight or a gallon measure are ever units of measurement. The value of a horse, for example, is compared with that of a dollar when it is found that he will exchange for as many things as a hundred dollars will exchange for. And, when his value is stated as a hundred dollars, the dollar becomes the unit of measurement. This process does not differ in the slightest degree from the process of measuring the height of the horse. When it is found that he is sixteen hands high, it means simply that a hand is taken as a unit of measurement.

What makes this whole question so difficult, and at the same time so important, is the fact that, while value is *par excellence* the basis of the economic concept of quantity, the economist is yet forced to use various physical concepts also. In fact, he is compelled to shift back and forth from one concept to the other, as, for example, when he discusses the relation of the law of supply and demand to value. Tho it is impossible to avoid this shifting, it is highly important that it should be done consciously and with one's eyes open to the fact that one is shifting one's position. In any discussion of the law of supply and demand in relation to value, the supply of the commodity in question (with one exception to be noted later) can only be conceived as a physical quantity,—that is, a quantity measured and stated in terms of one of its physical properties rather than in terms of value. But when one attempts to state the amount of the wealth of the community, the quantity of the commodity in question, together with that of all other commodities in the community, is stated in terms of value rather than in physical terms. Since economics is primarily concerned with the concept of wealth, and since the quantity of wealth can only be intelligently expressed in terms of value, it will be easy to see what was meant by the above statement that value is the basis of the real economic concept of quantity. Tho this concept of quantity is somewhat less definite and somewhat more elusive than the various physical concepts, this fact in no wise relieves us of the necessity of thoroughly understanding and mastering it, for important principles depend upon our understanding and mastery of it. Its elusiveness is not the fault of the economic theorist. It is the fault—if there is any fault—of circumstances. It is not even the invention of the economic theorist. It is the invention of the practical economic world, which completely accepts it, tho it does not necessarily understand all that is implied in it. No practical man would fail for an instant to understand the meaning of the question, how much capital have you? or, what is the amount of your wealth?

In the opinion of the present writer there are two particular questions in the discussion of which confusion is likely to result from the failure to understand clearly that value is a quantitative concept, and that it is the basis for the measurement of quantities in the strictly economic sense. One is that of the nature and functions of capital, and the other is the question of the value of money.

II.

There can scarcely be doubt that capital consists of material things, altho even on this question some writers have taken a different view, and have thought of capital as something immaterial and abstract. This confusion itself, as the present writer has elsewhere pointed out,[1] is the result of an oscillating quantitative concept. In those centres where the *ownership* of capital is most concentrated and where the transfers of ownership are made on the largest scale, as in the stock markets, it has become customary to speak of these transfers as exchanges of capital. It is also customary to name in statistical tables the amount of capital so transferred. Now the amount of capital whose ownership is thus transferred is invariably expressed in terms of dollars and cents, which means that value has been taken as the basis of quantitative expression. It is, therefore, easy to conceive of capital as an abstract fund of wealth measured in terms of value, or even as consisting in a fund of value. Thus the custom prevails of thinking of capital as value, sometimes even as money.

Having arrived at the conception of capital as a fund of value, it then becomes pertinent to inquire, with the socialists and with certain literary metaphysicians, whether capital is productive or not. This question could not possibly arise in the mind of one who held to the conception of capital as consisting of concrete material instruments of production, for the question in his case would be the same as asking whether tools are useful, and that would be absurd. But if capital is thought of as consisting of value, it would then by no means be absurd to ask such a question, because it would not be quite clear how an abstract fund of value could be productive. As a matter of fact, it is not. And, with this conception of capital in mind, the only logical answer to the question, is capital productive? would be in the negative. If capital *is* value, it is obvious that it is not productive, for the value of a thing does not produce anything. Instead of being the cause of a product, the value in a tool is really the result of the product. That is, the fact that the tool is useful and increases the productiveness of industry is what gives it its value. In other words, capital properly understood as a group of concrete material things has value because it is productive, and, except in the case of money, it is not its value which makes it productive.

---

[1] See vol. xv. pp 587–588 of this *Journal,* also *The Distribution of Wealth,* New York, 1904, chap. iii

The failure to see that capital consists of concrete material things, and that it is its quantity only which is expressed in terms of value, accounts in part for the confusion prevalent between land and capital. Not only may the amount of capital be expressed in terms of value, but that of land also. One may think of his land as so many dollars' worth, in which case the conception of land blends easily with the conception of capital as also being so many dollars' worth. Whereas, if one held to the physical concept of land as consisting of certain material sections of the earth's surface, and of capital as consisting of certain material concrete things made by human effort, he would find that the two concepts did not blend so easily. Take, for example, the argument sometimes presented, that land is constantly being produced by the railroad builders and the diggers of canals.[1] A recent writer has asserted that the Panama Canal Company is producing land in the same sense as the Baldwin Locomotive Works are producing locomotives. The writer, doubtless, means that lands hitherto unavailable for use will be made available and brought under cultivation by the digging of the Panama Canal. Tho he would not maintain that this creates new land surface on the face of the earth, he would assert that the increase in the usableness of some of the existing surface is equivalent to the production of land. Now the increase in the usableness or the utility of land surface hitherto beyond the margin of cultivation would not differ essentially from increasing the usableness or utility of land surface already within the margin of cultivation. Whereas considerable sections of the earth's surface whose utility was *nil* before the digging of the canal will thereafter have a positive utility, similarly, considerable sections of the earth's surface whose utility was already a positive quantity before the digging of the canal will thereafter have a utility represented by a still greater positive quantity. Therefore it would be as true to say that the Panama Canal Company is producing new land when it adds to the utility and value of the land already cultivated as it would to say that it is producing new land when it gives a value to land formerly possessing none. In neither case is it creating new land surface. In both cases it is simply increasing the usableness, the utility, and consequently the value of the land,—in one case increasing it from *nil* to a positive quantity, in the other increasing it from a positive quantity to a still higher positive quantity.

---

[1] *Cf* W M Daniels, in *Political Science Quarterly*, vol xx. p. 554.

The same error, of conceiving of land as consisting of value, is made by another writer,[1] who admits that land surface could not be produced, but says that land capital could be produced, and that therefore the supply of land could be increased, as well as the supply of capital. The fatal defect in this line of reasoning lies in the failure to see the necessity of shifting from one conception of quantity to another in certain phases of economic discussion, and the consequent necessity of having one's eyes open to the fact that one is shifting. The supply of land, like the supply of anything else, must be conceived of as a physical quantity; that is, a quantity measured and expressed on the basis of some of its physical properties. To attempt to state the supply of land in terms of value results in a crude case of reasoning in a circle. If the supply of land consists in its value, then one might say that there is an abundance of land on Wall Street, New York, because, altho the land surface is very limited, the land value is immense. It is the scarcity of the supply, as measured in physical terms, which gives it its immense value, and therefore makes it so large a quantity when expressed in terms of value. If, by any chance, the completion of the Panama Canal should still further raise the value of land on Wall Street, it would mean the production of more land at that place as truly as it would mean the production of land anywhere else, say on the margin of cultivation.

---

[1] Professor Carl C. Plehn before the Massachusetts Single Tax League, December 8, 1902.

In reality this so-called production of land by the Panama Canal Company is quite like the so-called production of land values by the general social activities of the whole community. The building of a church or a school-house in a rural community may add something to the value of the neighboring land, and it is possible that it will also give a positive value to certain areas which formerly had no value at all. But this idea of production is quite different from that which we apply to the building of the church or the school-house itself. When one of these buildings is erected, there is a physical change. A thing exists which did not formerly exist at all, and it would be very difficult to convince the workmen that they are constructing land in precisely the same sense that they are constructing a building. Returning to the illustration of the Panama Canal Company, it is quite possible that the completion of the Panama Canal may greatly increase the field for the use of locomotives. That is, it may open up new territories to the enterprise of the railroad builder. In that case the completion of the Panama Canal would result in an increase in the world's supply of locomotives. In other words, if this were true, the Panama Canal Company is producing locomotives in precisely the same sense that it is producing land. But it is not producing locomotives in the same sense that the Baldwin Locomotive Works are. It is merely making better market conditions, so that more locomotives and more land may be used in the future than at present, whereas the Baldwin Locomotive Works are actually constructing locomotives. No organization, so far as the writer knows, has actually constructed new land surface. It ought to be clear that there is a wide difference between making locomotives in a concrete sense—that is, taking the crude materials from the mines and working them up into locomotives by human skill and industry—and creating conditions which give value to those locomotives after they are made. It ought to be equally clear that there is a wide difference between producing land and creating conditions which give value to land already in existence.

All these attempts to fuse land with capital depend upon the ability to reduce land and capital to a common basis of quantitative expression. That comes thru the use of value as the basis of quantitative expression. When land is thought of as a sum of value rather than as acres, and when capital is thought of as a sum of value rather than as tools or implements, it is perfectly easy to blend the two concepts. And in addition, when the quantity thus expressed is seen to be variable and capable of being increased, it is easy to think of "land capital" as capable of being increased by human labor and enterprise. But this could never occur to one who held a perfectly clear notion as to what "land capital" means,—that it is simply a different quantitative expression for land from the physical one, that it is merely a change from the concept of land as measured and quantitatively expressed in terms of superficial area to a concept of land as measured and quantitatively expressed in terms of value.

III.

It was stated above that capital conceived of as concrete goods derives its value from the fact that it is productive, and that the value, therefore, is not the cause of the product, but the result of the product; and, again, that capital conceived of as a fund of value cannot be said to be productive. It is necessary here to point out the striking exception to that rule; that is, the case of money. While it is obviously not true that capital is money, as is sometimes popularly assumed, it is true that money is capital. That is, it is one kind of capital. It is productive in the sense in which any other form of capital is productive. It facilitates the business of production. By having money with which to transact his exchanges, the producer economizes time and effort, as is easily seen by any one who will consider the difficulties under which the producer would work if he had no money, but had to depend upon barter. While money is productive in that sense, it is different from all other forms of capital in that it derives its productivity or its usefulness from the fact that it has value or power in exchange. Its function being to facilitate exchange, it is necessary that it possess power in exchange or the ability to purchase, in order that it may perform that function. How it gets its purchasing power is not a part of the present question. Even fiat money, if it performs the function of money at all, must have purchasing power. It must have power in exchange.

This difference between money and other commodities ought to make it apparent that the value of money cannot be accounted for by precisely the same phase of the law of supply and demand as will account for the value of other commodities. In discussing the relation of the law of demand and supply to the value of any other commodity, we must state the quantity of the supply in physical terms, and not in terms of value. The value of a loaf of bread depends, a given demand being assumed, upon the number of the loaves of bread, and a loaf of bread is a physical thing. It weighs, say, a pound, or it occupies a certain cubic space. When speaking of the supply of bread in relation to its value, therefore, we must state that supply in terms of weight, or cubic contents, or some of its purely physical properties. But it is different with money. The supply of money, being the quantity available for doing the money work, has to be stated in terms of value, since it is the value of each unit which determines how much work that unit can do. This makes the question of the value of money the most subtle and elusive of all the questions of value.

It is obvious that there can be no such thing as a law of demand and supply determining value, unless it can be reduced to a question of marginal utility. Now the utility of money, as already pointed out, lies in its ability to facilitate exchange. And, other things equal, its ability to facilitate exchange depends upon its power in exchange, or its value. But the utility of bread consists in its ability to satisfy hunger, and this depends upon the nutriment which it contains, and not upon its value. If we could conceive of bread as varying in nutritive qualities from time to time and from day to day, the question of its value would be more elusive than it now is. But, if it varies at all in nutritive properties, these variations are so small as to be negligible, and we may therefore assume that a given pound of bread possesses as much nutriment at one time as at another, so that the total utility of the whole supply of bread depends upon the number of pounds available. With a given number of people to be fed and a given supply of other articles of consumption, the demand for bread is better satisfied when there are more pounds than when there are less pounds. As the number of pounds increases, the desire for bread is more and more fully satisfied, so that the marginal utility of bread diminishes. But, on the other hand, if by some miracle the nutritive quality of bread could be increased from day to day without increasing the number of pounds, still there might be said to be an increase in the supply of bread. The community would be better nourished and the demand for nutriment would be more fully satisfied, so that it would be a matter of indifference to the community whether the number of pounds of bread of the same average nutrition should double or whether the nutritive power of each loaf should double and the number of loaves remain the same.

Now it is the property of value in money which enables it to do its work, just as it is the nutritive property in bread which enables it to do its work. With a given number of pounds of money, if each pound doubles in purchasing power, there is twice as much money; or the power of money to do its work would be doubled as truly as would the power of bread to do its work if the nutritive power of each pound were doubled. The question is a practical one, because the purchasing power of a pound of money does vary from time to time. But, aside from this, it is obvious that we shall get into difficulties at once if we attempt to apply the demand and supply theory to the value of money in the same way in which we apply it to the value of bread. For, as the real supply of bread is the quantity of nutriment embodied in it, so is the real supply of money the quantity of value embodied in it. And, while we might say that the value of bread diminishes as the quantity of nutriment embodied in bread increases, it would not do to say that *the value of money diminishes as the quantity of value embodied in money increases.* The obvious importance of this consideration to the discussion of the quantity theory of money will at once appear, and it leads to some of the following considerations.

It would probably be agreed by every one that under a system of free and gratuitous coinage of the standard money metal, and under conditions where the standard metal was actually kept as the basis of circulation, the value of money of any kind would have to correspond to the value of the bullion from which the standard money was coined. In this country, for example, the value of a dollar must always be the same as the value of 25.8 grains of standard gold, so long as gold remains the basis of our currency. Nothing can therefore affect the value of money which does not at the same time affect the value of gold bullion. But the question arises, what would determine the value of money in the absence of this system of free and gratuitous coinage and in the absence of the governmental policy of maintaining a gold standard? It is held, for example, that, since the demand for money and the supply of money determine its value, therefore the value of money would remain the same even under an inconvertible paper currency as under the present system, provided the number of dollars remained the same. The facts already pointed out relating to the question as to what constitutes the supply of money ought at least to make us cautious about accepting any conclusion of this kind. Since it is the value itself which enables the money to do its work, it would seem to be value which is demanded. The demand for bread is not a demand for value or purchasing power, but for nutriment, and nutriment is not dissociated from weight. Therefore, it is not inaccurate to say that the demand for bread is the demand for pounds of bread. And it is this demand for pounds of bread which gives value to each pound. But, since it is the value of money which enables it to do its work, it is value which is wanted. The demand, therefore, is for value. Can it be said that the demand for value is what gives value to money? It would seem, at least, that there must be some antecedent value in the money before it is demanded, and, if the demand gives any value whatever to the money, it is only a supplementary value.

It is one thing to say that the demand for nutriment as embodied in pounds of bread, and the supply of nutriment as embodied in pounds of bread, are the sole factors in determining the value or purchasing power of a given quantity of nutriment or a given number of pounds of bread; but it is quite another thing to say that the demand for value or purchasing power in money and the supply of value or purchasing power in money are the sole factors in determining the value or purchasing power of a given quantity of value or purchasing power. Yet this latter is the proposition to which they must subscribe who make no distinction between money and other commodities, and who apply the law of demand and supply to money in precisely the same way in which they apply it to the value of other commodities. It may be assumed that nutriment is the quality which makes bread useful, and therefore it would be quite proper to say that the demand for nutriment and the supply of nutriment together determine the value or purchasing power of a given amount of nutriment. Or, if we were permitted to assume that warmth is the sole quality which makes clothing useful, it would be quite proper to say that the demand for warmth and the supply of warmth together determine the value or purchasing power of a given amount of warmth as embodied in clothing. But, altho we must assume that value or purchasing power is the property which makes money useful, or enables it to do its work, it would not do at all to say that the demand for value and the supply of value together determine the value of a given amount of value. This, again, is the proposition, absurd as it is, to which the advocates of the crude quantity theory of money must subscribe, unless they are willing to introduce an important modification in the quantity theory as applied to money.

One curious effort to avoid this conclusion is the attempt to define the utility of money in terms of the things which it will purchase. That is to say that the utility of a piece of money consists of the utility of the things for which it will exchange. If this be true, why not say, also, that the utility of a loaf of bread consists of the utility of the other things for which it will exchange, and then say that the utility of each of these other things in turn consists of the utility of the things for which it will exchange, and so on indefinitely, the utility of everything consisting of the utility of something else. As a matter of fact, this whole proposition is absolutely devoid of meaning. To say that the utility of a piece of money is the utility of the things which it will purchase throws no light on the real question, which is, what determines the number of things which it will purchase? That is the question of value. If a loaf of bread will exchange for a peck of potatoes, it is because the utility of a loaf of bread to the marginal consumer is equal to the utility of a peck of potatoes. And, if a piece of money will exchange for a barrel of flour, it is likewise because the utility of the piece of money to its marginal user is equal to that of the barrel of flour. But to say that a piece of money is worth a barrel of flour because the final utility of the money to the marginal consumer is equal to the utility of the barrel of flour, and then to define the final utility of the money as consisting of the utility of that which it will purchase,—namely, the barrel of flour,—would be another crude case of reasoning in a circle.

Now the utility of money is the sum of advantages which it affords to society, or the advantages of carrying on business with money rather than without money. Picture to yourself the disadvantages of barter, and you will have, in negative form, a picture of the utility of money. The final utility of money is the advantage which the final increment affords. Find out how greatly exchange is facilitated by means of this final increment, or how much easier it is to carry on the business of the community with this last increment than it would be without it, and you have the measure of the final utility of money.

Some exchanges could scarcely be made at all without the use of money. In these cases the utility of money is very high, and would equal the utility of the exchanges themselves; that is, the advantage of being able to exchange over the disadvantage of not being able to make the exchange at all. Some exchanges could only be made with great difficulty without money, in which cases the utility of money would be considerable. Some other exchanges could be made with comparatively little difficulty, in which cases the utility of money would be inconsiderable. And some exchanges could be made as easily without money as with it, in which cases the utility of money would be *nil.* This gives us a law of the decreasing utility of money. If there were only enough money to enable the community to carry on those exchanges which could not be made at all without money, and if there were none for facilitating those exchanges which could be made without money, but with great difficulty, the final utility of money would be great. Add something to the quantity of money in use, so that those exchanges which could otherwise be made only with great difficulty may now be made by the use of money, and the final utility of money will be diminished, tho it will still be high as compared with what it would be if money were so abundant that practically all exchanges could be made by its use.

Let us take a concrete case. A merchant could hardly do business at all without some cash in his drawer. Here is a real need of a real man conducting a real business, but the exact amount which he must have is not absolutely fixed. He may keep more or he may keep less in his cash drawer. The quantity of his wealth being fixed, if he has more cash in his drawer, he must have fewer goods on his shelf. If he has less cash, he may have more of goods. When it comes down to a question of final increments, the question is, will it be better to have one more dollar in his cash drawer and one dollar's worth less on his shelves, or will it be better to have one less in his cash drawer and one dollar's worth more on his shelves? If he should decide that the inconvenience of doing business with a little less cash would overbalance the loss from having somewhat fewer goods on his shelves, he will provide for the extra cash, and *vice versa.* This gives a view of the final utility of that particular quantity of money to him. Since something like this is true of each and every individual doing business in the community, it is true of the business community taken as a whole.

As a matter of fact, there are many important exchanges transacted by means of uncoined bullion, which is one of the most convenient forms of barter and the one which approaches most nearly to a money economy. This indicates that in some of these cases at least the uncoined bullion is preferable to either gold coin or paper currency. In certain other cases it is doubtless a matter of indifference which is used. These represent the marginal use of money. But, if there were no kind of money except irredeemable paper, the choice would be narrowed down to the use of this kind of money, on the one hand, or the resort to the use of bullion or to some other form of barter, on the other. This would almost certainly lead, at least in some of the marginal cases, to an increased use of barter and a lessened use of currency. If this be true, there is, even from the standpoint of the crude quantity theory, a weakness in the argument that, with a given amount of business to be carried on, an equal number of dollars would have equal value, whether they were made of gold or of irredeemable paper. If every gold dollar and every dollar redeemable in gold were replaced by an irredeemable paper dollar, the margin of indifference between the use of barter and that of currency would be affected unfavorably to currency. In other words, in many of those cases where it was a matter of indifference whether the exchange were effected by barter or by means of (gold) currency, there would now be a preference for barter in one form or another over the use of the (to some) less desirable form of currency. The result of this would be a reduction in the demand for currency which, the number of dollars having been assumed to be the same, would, even according to the crude quantity theory, cause a fall in its value.

This difficulty cannot be met by simply calling bullion money. The question is, can the circulation of the country absorb as much irredeemable currency without depreciation as it can of *coin* and redeemable currency? If the general use of irredeemable paper currency were to cause merchants, importers and bankers to make a larger use of bullion, there would be a correspondingly smaller use of currency. Consequently, the government could not inject so much of this kind of currency into the circulation as it can of the present forms without causing depreciation.

However, there are many other transactions where the advantage of money over barter of any kind is so obvious that men will use money instead of barter by common consent, even when it is of irredeemable paper. There are cases where money known to be counterfeit, and therefore not only not legal tender, but illegal in every sense, has circulated freely and performed all the functions of a circulating medium.[1] Enough money to perform this work would doubtless circulate and have a value far above that of the material of which it is made, even if it were not redeemable in any sense. A still larger amount would also circulate if it were indirectly redeemable by being received at the post-office and other government offices in payment of dues to the government.

Is it not true, it may be asked, that, when the volume of the currency increases, other things remaining the same, the purchasing power of each unit tends to fall? There seems to be evidence enough to show that these two conditions tend to go together, but it is not so clear which is cause and which is effect. All the observed facts are quite as consistent with the theory that the demand for money is a demand for value, and that money must have some antecedent value before it can serve as money, as they are with the quantity theory. Let us assume, for the sake of argument at least, that the former theory is correct, that it takes a certain amount of value embodied in money to do the money work of the country, and that the demand for money is really a demand for this value. If the value of each piece of money falls, it will then require a larger number of pieces to do the money work for the reason that it will take a larger number of pieces to effect each and every transaction. Under the free and gratuitous coinage of gold, if the value of gold bullion falls, the purchasing power of the gold dollar will also fall. Consequently, more dollars will be needed to do the money work. Since the gold supply distributes itself automatically between the currency and the arts, more gold comes into circulation as coin. This is at least as good an explanation of the phenomenon we are at present witnessing as the theory that prices are rising because more gold is coming into circulation without explaining why it comes into circulation.

---

[1] See James Monroe, *Lectures, Addresses, and Essays*, Oberlin, Ohio, 1897, pp. 164, 165.

That the law of demand and supply, if it is applicable to the value of money at all, must be applied in a special manner, ought to be apparent from what has already been said. The following comparison between bread and money will add something to the vividness of the contrast. When the number of pounds of bread increases, its physical properties remaining the same, the community is better supplied with bread, even tho the purchasing power of each pound is so reduced as to reduce the total purchasing power, or value, of the whole supply. But when the number of pounds of money increases the community is not so well supplied with money if the purchasing power of each pound is so reduced as to reduce the total purchasing power, or value, of the whole supply. Assuming that loaves and dollars are fixed physical units, an increase in the number of loaves necessarily means an increase in the supply of bread, but an increase in the number of dollars is quite consistent with a decrease in the supply of money. If the value of each dollar falls more than in proportion to the increase in the number of dollars, there is an actual decrease in the supply of money; that is to say, the total amount of money is not able to do so much work as before.

That every discussion which involves a quantitative concept should be preceded by a tolerably clear analysis of the nature of that concept ought to be apparent without discussion. That economics has suffered because economists have failed, in at least two conspicuous cases, to make such an analysis, the writer believes that he has now shown.

T. N. CARVER.

HARVARD UNIVERSITY.